

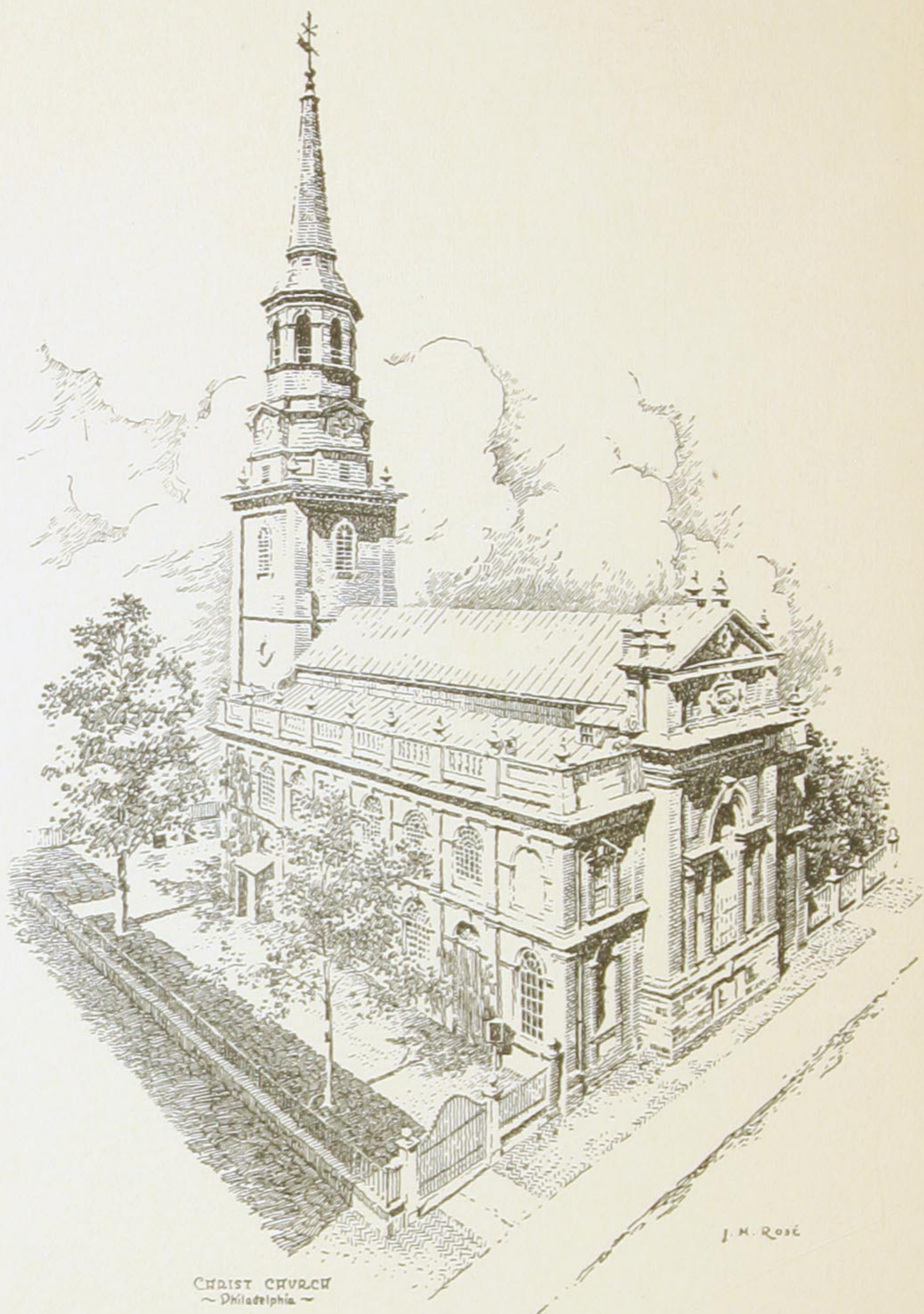
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# Copper *the* Ideal Roof







The copper roof on Christ Church is 173 years old and is still giving splendid service

# COPPER

*—the ideal roof*

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# COPPER

*—the ideal roof*

THE Roof, whether on a public or a private building, has always involved in equal parts, the questions of construction and design.

THE  
ROOF

Structurally considered, the roof must possess stability and must afford, as nearly as human ingenuity can contrive, a thorough protection of the building beneath it from the weather. The best roof, obviously, is the one which will afford the maximum of protection with a minimum of maintenance cost.

Considered from the point of view of design, the architect is concerned equally with the profile or contour of the roof as related to the building, and with the artistic effect obtainable from the roofing material which he selects.

THE  
COPPER  
ROOF

It is the purpose of this booklet to point out the unique structural and artistic advantages which are afforded to architect and owner in the use of copper for any type of roof, as applied to any type of building.

KINDS OF  
ROOF

While there is a great variety of roofs, the principal types, of which all others are variants, can be confined to five, as follows:

1. The Mansard Type
2. The Gable Type
3. The Gambrel Type
4. The Hip Type
5. The Flat Type

1. THE  
MANSARD

The mansard was widely popular in the design of dwellings of fifty years ago, and many examples, both good and bad, exist throughout the country today. The chief advantage of the mansard roof lies in its maximum utilization of space on

the top floor, and its greatest failing appears when, through poor architectural treatment, the building looks top-heavy. This type, or a modification of it known as "Combination Hip and Flat Deck" is particularly adapted to large public buildings where a distinctly formal roof aids the design.

The gable roof is the plain pointed roof which is confined almost entirely to dwellings. Its effect depends upon the pitch of the roof, meaning its inclination or degree of steepness, and upon the skill with which dormer windows and chimneys are introduced to break its monotony.

2. THE  
GABLE

The gambrel roof is a form of gable roof with two different pitches. Its distinguishing characteristic is the shoulder, and the pitch from ridge down to shoulder and from shoulder down to eaves varies with different local types. A marked

3. THE  
GAMBREL

difference, for example, is apparent in the steep gambrel roofs of New England and the low, graceful sweep of the gambrel characteristic of the Dutch Colonial houses of New York State, New Jersey and further south.

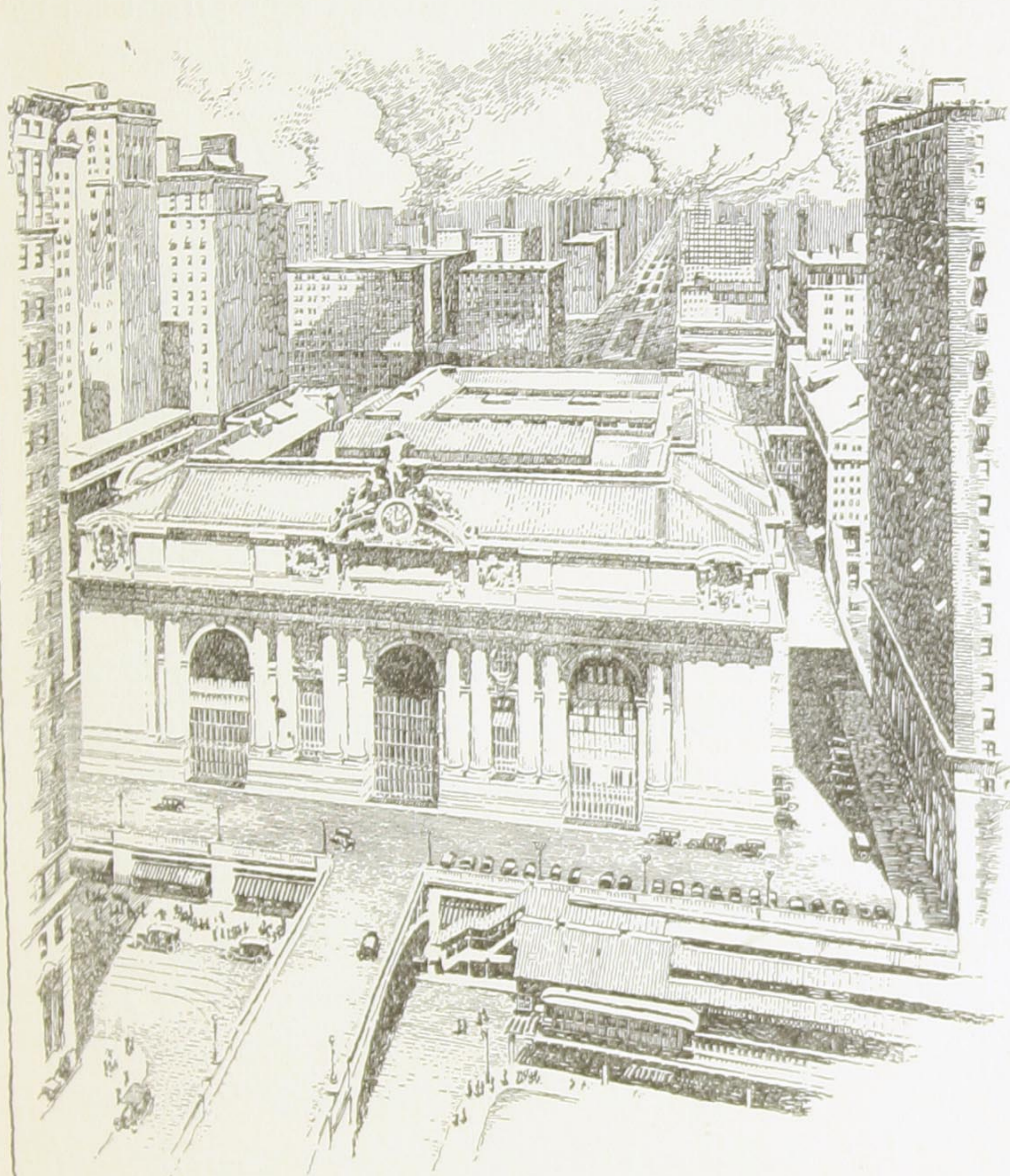
#### 4. THE HIP

In the hip roof, four rafters run up diagonally from the corners to meet the ridge.

This is the type of roof not so frequently seen in dwellings as the gable and the gambrel, but very frequently seen in large public buildings. Its symmetry from side or end commends it for use in architectural projects of a formal nature.

#### 5. FLAT ROOFS

The flat roof, as its name implies, is a roof in which the element of design enters hardly at all. Roofs which are literally flat are usually only portions of roofs, such as small deck areas, for even a flat roof usually has a two-way or one-way pitch sufficient to drain water to gutters,



GRAND CENTRAL TERMINAL  
— NEW YORK —

Copper, the Ideal Roof, adds dignity and charm to the beautiful  
Grand Central Terminal

even though this pitch be so slight as to be hardly perceptible.

COPPER  
FOR  
ROOFS

The ideal of a roof, in one word, is summed up in permanency—in the idea of a roof which can withstand all the elements for an indefinite period of time without repairs or repainting. The roof of copper will last as long as the building it covers—so far as we can humanly use the term, it will last forever, with no maintenance cost. Exhaustive investigation of the physical and chemical properties of copper have proved conclusively that it is in every respect the logical roofing material.

SHEET  
COPPER

Copper is made into sheets of almost pure metal, the impurities being less than one tenth of one per cent. It is purer than other metals as they are ordinarily manufactured for industrial purposes, and is less active chemically than any but the noble metals. This immunity to

chemical attack insures a high resistance to corrosion by air, water, acids and other agencies. In comparison with other metals its endurance may be counted by decades rather than years. From a relative point of view it may justly be called the Everlasting Metal for roofings. For strength coupled with ductility it is unexcelled.

The leak-proof qualities of the copper roof were strongly brought out in a test in which a fire-hose at forty-five pounds pressure was held within a few feet of a piece of copper roofing without a drop of water penetrating. It has also been found that the copper roof is unaffected by below-zero cold, and that it does not warp, split or curl under the hottest sun.

ITS  
ECONOMY

There is no maintenance cost for the roof of copper, because it requires no paint and it is impervious to the elements. Its

first cost is its only cost, and even this is less than the cost involved in the roof of slate or tile.

The general belief that copper roofs are expensive arose from imperfect methods of laying which involved high labor costs. The copper was furnished in large sheets which were difficult to lay, and perfect seams were not easy to make. From this came the former high cost of copper roofs, but architects and engineers working together, men who thoroughly knew every problem connected with copper, finally evolved a type of copper roofing which eliminated excessive installation costs, and brought the price of the finished roof down to a point where any house-owner, prospective builder or building committee can—and should consider it.

A distinct factor of economy in the roof of copper lies in its light weight, which

allows of light instead of heavy roof framing. The following table affords an interesting basis for comparison of the relative weights of seven types of roofing as compared with two types of copper roofing:

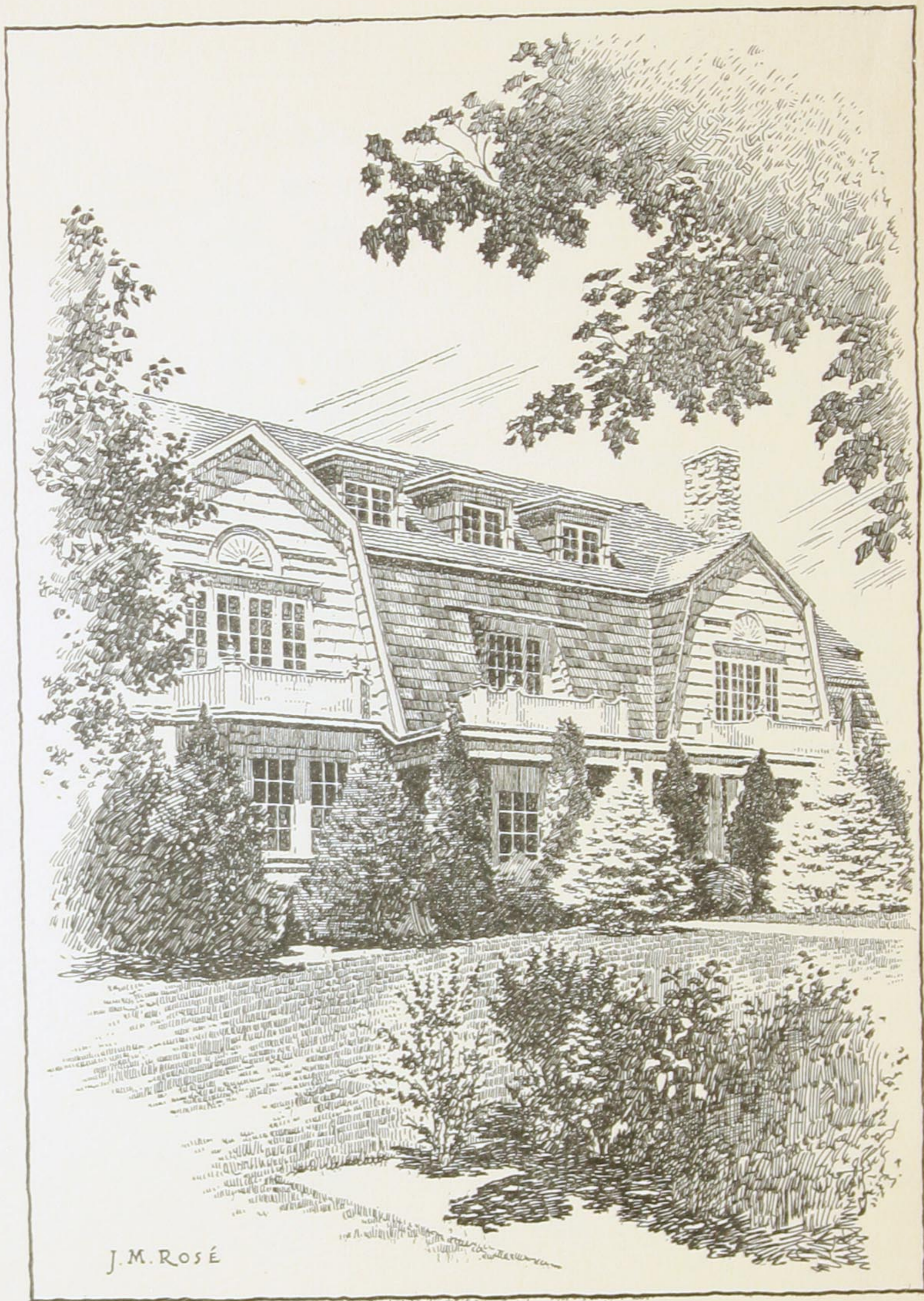
LIGHT  
WEIGHT

Material	Weight per 100 sq. ft. Laid
Shingle Tile . . . . .	1200—1800 lbs.
Spanish Tile . . . . .	650— 850 “
Slate . . . . .	450— 675 “
Felt and Gravel (or Slag) . . . . .	400— 625 “
Asbestos Shingles . . . . .	300— 650 “
Hardlead Sheets . . . . .	210— 325 “
Wood Shingles . . . . .	200— 300 “
20 g. Galv. Iron (Corrugated) . . . . .	225 “
16 oz. Copper (Standing Seam) . . . . .	125 “
Copper Shingles . . . . .	84— 100 “
Tin . . . . .	75 “

The saving in the structural cost of the framing is thus apparent and demonstrable.

There are four methods of laying copper roofs, all of which are sheet copper or copper shingles.

TYPES OF  
COPPER  
ROOF



A residence at New Rochelle, N. Y., roofed with Copper Shingles

The Batten or Ribbed type has, as its salient feature, evenly-spaced battens or ribs running with the slope of the roof. These ribs are usually about two inches square and are spaced about twenty inches apart. The roof is made of soft copper worked over the battens.

BATTEN  
TYPE

It is not the least expensive type, for obviously it uses more copper and requires more labor than other types. It has in its favor dignity, character and beauty, and by its very construction safely provides against expansion and contraction. On large steep roof areas, such as mansards and gables, for public buildings, churches, or large residences, it gives dignity and character to the structure, lending itself readily to the scheme of ornamentation.

The second type of copper roof is the Standing Seam Type. Here the con-

STANDING  
SEAM  
TYPE

struction of the seams amply provides for movement of the metal, due to changes in temperature, and successfully avoids that monotony characteristic of large roof areas poorly treated. This type, it can readily be seen, is somewhat similar to the batten type and has certain advantages over it, it is less expensive and can be used artistically on smaller buildings having flatter roofs. Like the batten type it can be used on roofs with steep slopes.

FLAT  
SEAM  
TYPE

The Flat Seam or third type of copper roof requires a soldered joint. This type of construction is used on flat areas such as porch roofs, mansard tops, flat wide dormers, and entrance canopies. Copper can be used where no roofing material other than another (and perishable) metal could be used.

Another form of copper roofing is Copper

Shingles. These are made from roofing temper copper sheets in a variety of sizes and designs. The method of application is simple. Each shingle is secured to the roof sheathing by copper nails and laps over the adjoining ones in such a manner as to form a water tight joint. No soldering is required. No allowance for expansion is necessary, as the form of the shingle provides ample room for movement.

COPPER  
SHINGLES

Copper shingles can be laid equally well on new roofs or over old shingles. Because of their raised-butt construction they are lifted slightly, thus providing an air space beneath the surface and the roof sheathing, allowing perfect ventilation with consequent coolness in summer.

Copper shingles are light. A roof as covered weighs only one-ninth as much as slate and one-third as much as wood.

This feature means a real economy in structural framing.

FLASH-  
INGS,  
GUTTERS  
AND  
LEADERS

Every roof requires flashings, which should always be of copper. These are pieces of metal used at places where breaks in the roof surface occur, as at the chimneys, dormers, or where a change in direction of the roof surface forms a "valley" down which rain water flows to the gutters, or where the roof ends against a vertical wall or joins another as a dormer roof does the main roof. At these places it is necessary to cover the joint, and the piece of copper by which it is done is given the name "Flashing." Every good roofing contractor knows how to flash properly, and if copper is used no breaks are possible at the joints.

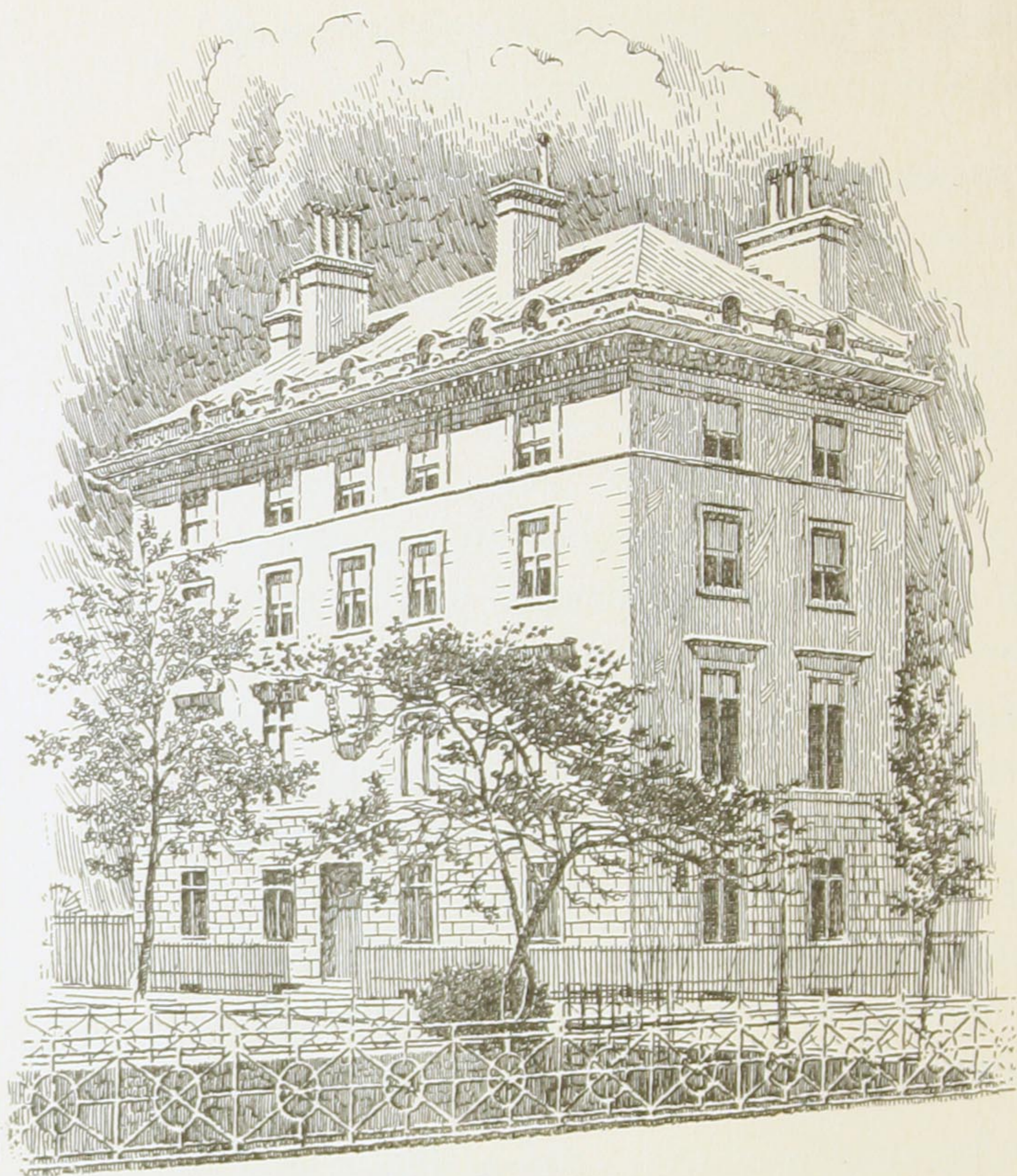
It is hardly necessary to mention copper gutters and leaders or downspouts. As in the copper roof, the same durability,

the same beauty and the same absence of maintenance costs are found here.

Copper has a peculiar advantage over other metals used for roofing in that it contains in itself all the requirements of decoration. It can be oiled and left to mellow to that dull bronze color which is seen only in copper, or it can be specially treated to obtain varied and beautiful effects in harmonious colors which range through autumn reds, russet browns, olive green, verde antique and emerald greens, blue greens and even a rich peacock blue. Near salt water copper roofs can be used with the assurance that they will gradually assume a natural, soft green color, as beautiful as it is permanent—and non-corrosive.

THE  
BEAUTY  
OF  
COPPER  
ROOFS

With such a palette, the architect can create a roof which is actually a symphony of color—and these colors, being



J.M. Rosé

A town house in East 70th Street, New York, with copper  
roof and copper cornices

a part of the material itself, have a rich, velvety texture which paint or stain could not give, and which possesses absolute permanency.

This brief summary of facts cannot fail to convey to the prospective builder the suggestion that before deciding upon his roof he will do well to go into the question of copper roofing thoroughly.

THE  
IDEAL  
ROOF

No charge of exaggeration can be brought against the statement that copper makes the ideal roof.

“A roof should not cost too much yet should cost enough to insure perfect service forever.”

Copper, whether in sheet or shingle form, makes a roof which is impervious to the elements and unaffected by temperature or by fire. It makes a roof which is economical both in the saving of structural framing due to its light weight, and

because of its permanent freedom from maintenance or replacement costs. Its first cost is its last cost.

Added to these practical considerations, the copper roof is a thing of beauty, with a color range adaptable to any type of house or to any environment.

Copper makes the roof which is practical, permanent, economical and beautiful—in short, the ideal roof.







